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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/600,145	07/10/2000	HIROKI NAKAHARA	9319S-000137	7749

7590 10/15/2004  
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EXAMINER

DUONG, THOI V

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 10/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/600,145

Applicant(s)

NAKAHARA ET AL.

Examiner

Thoi V Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,4,6 and 17 ~~is/are~~ pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6 and 17 ~~is/are~~ rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 21, 2004 has been entered.

Accordingly, claims 1 and 4 were amended, claims 2, 5 and 7-16 were cancelled, and new claim 17 was added. Currently, claims 1, 3, 4, 6 and 17 are pending in this application.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1 and 4 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Objections***

3. Claim 17 is objected to because of the following informalities: claim 17 recites the limitation "the first edge" in line 3. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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5. Claims 1 and 4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation "a boundary between the first linear portion and the oblique portion, the boundary being at a position that overlaps with the seal member as viewed in plan" recited in claims 1 and 4 is not supported by the specification. At lines 2-8 of page 25, the specification discloses that the sealing material 30 is also formed in an area where the first terminal 60 and the second terminal 70 for conduction between substrates overlap each other. Fig. 5 also shows "a conductive area between substrates" where the sealing material 30 is formed. The specification does not disclose the boundary being at a position that overlaps with the seal member as viewed in plan.

Claims 3, 4, 6 and 17 are also rejected since they are dependent on the rejected claims.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 1, 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 56-20927 (JP'927) in view of Burrell et al. (USPN 5,680,192) and Hayakawa et al. (JP 6,172,732 B1).

As shown in Figs. 1a and 1b, JP'927 discloses a liquid-crystal display apparatus, comprising:

a first substrate 5 having:

a plurality of first substrate terminal 7 located adjacent to and aligned along a center portion of a first edge of said first substrate and extending linearly toward a second of said first substrate opposing said first edge (Fig. 1a); and

a first electrode pattern 6 electrically connected to said first substrate terminals;

a second substrate 1 having:

a plurality of first input terminal 9 located adjacent to and aligned along a first edge of said second substrate and extending in a direction from the first edge and linearly toward a second edge of said second substrate opposing said first edge of said second substrate;

a plurality of second substrate terminals 8 electrically connected to said first input terminals 9;

a plurality of second input terminals 4 located adjacent to and aligned along said first edge of said first substrate and extending linearly toward said second edge of said second substrate, the second input terminals having a first portion flanking

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one side of said first input terminal 9 and a second portion flanking another side of said first input terminal 9; and

a second electrode pattern 2 including a plurality of lines each electrically connected to a corresponding one of said second input terminal 4; and

a sealing member 10;

wherein said first substrate 5 and said second substrate 2 are located in an opposed manner through said sealing member so that the first substrate terminals 7 and said second substrate terminal 8 overlap each other as viewed in plan (Fig. 1b);

wherein said first substrate terminal 7 and said second substrate terminal 8 are electrically connected to each other with a conductive material 13 between said first and second portions of said second input terminal 4 (or extending in a direction from said second substrate to said first substrate which is substantially perpendicular to the direction in which the first input terminals 9 extend); accordingly, said electrical conduction of said first and second substrate terminals is performed at said central portion (or said electrical connection is between portions of said second electrode pattern 2 flanking said second substrate terminal 8) (see Fig. 1a); and

wherein said first substrate terminal 7 for conduction between substrates and said second substrate terminal 8 for conduction between substrates linearly extend toward said second edges of said first and second substrates.

JP'927 discloses a liquid-crystal display apparatus that is basically the same as that recited in claim 4 except for a sealing member having a conductive material and the formation of the lines of the second electrode pattern 2.

As shown in Figs. 1-3, Burrell et al. discloses a liquid-crystal display apparatus comprising a first substrate 20, a second substrate 22, and a sealing member having a conductive material (col. 4, lines 39-45), the sealing member adhering the first and second substrates to each other and defining a liquid-crystal sealing area 24, wherein terminals 134 (transverse seal connectors) of the first substrate 20 and terminals 42 (contact pads) of the second substrate 22 are electrically connected to each other via the conductive material (col. 4, lines 39-48 and col. 5, lines 15-23).

Burrell et al. also discloses a first electrode pattern 16 formed on the first substrate 20 and a second electrode pattern 18 formed on the second substrate 22, wherein these electrode patterns are driven with opposite polarity voltages (col. 4, lines 48-60). As shown in Fig. 3, the lines of the second electrode pattern within the liquid-crystal sealing area each includes:

a first linear portion (extending from the terminal 42 at left) that extends linearly from where the line is electrically connected to the corresponding input terminal 138, the first linear portion of each line extending for a different length than the first linear portion of other lines of the second electrode pattern;

an oblique portion 106 that slants obliquely from the first linear portion from a boundary between the first linear portion and the oblique portion 106, a spacing between the lines of the second electrode pattern being narrower at the oblique portions than at the first linear portions, wherein the boundary is located lateral to the conductive material formed along the sealing area 24;

a second linear portion 104 that extends linearly from the oblique portion toward the second edge of the second substrate 22; and

a second-edge parallel portion 102 that extends from the second linear portion parallel with the second edge of the second substrate.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid-crystal display apparatus of JP'927 with the teaching of Burrell et al. by providing a proper configuration for the lines of the electrode pattern to maximize the viewing area and avoid crossover black dots (col. 3, lines 1-6 and 30-35).

However, the boundary between the first linear portion and the oblique portion 106 of Burrell et al. is not formed at a position that overlaps with the seal member as viewed in plan.

As shown in Fig. 1, Hayakawa et al. discloses a liquid crystal device comprising input electrodes having a first linear portion 41-1 to 41-10 and an oblique portion 45-1 to 45-10 that slants obliquely from the first linear portion from a boundary between the first linear portion, the boundary being at a position that overlaps with a seal member 44 as viewed in plan (col. 6, lines 9-18).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the liquid-crystal display apparatus of JP'927 with the teaching of Hayakawa et al. by forming the boundary between the first linear portion and the oblique portion at a position that overlaps with the seal member as viewed in plan so as to have an uniform black non-lighting area free of nonuniform



shading in a frame portion by optimizing the area occupation ratio of each wiring below a seal portion (col. 3, lines 40-45).

8. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 56-20927 (JP'927) in view of Burrell et al. (USPN 5,680,192) and Hayakawa et al. (USPN 6,172,732 B1) as applied to claims 1 and 3 above and further in view of Kobayashi (USPN 5,959,713) and JP 06-075240 A (JP'240).

The liquid-crystal apparatus of JP'927 as modified in view of Burrell et al. and Hayakawa et al. above includes all that is recited in claims 4 and 6 except for a driving IC. As shown in Figs. 3 and 4, Kobayashi discloses a first substrate terminal 8 and a first electrode pattern formed on a first substrate 1; and a first input terminal 12, a second electrode pattern 7a and a second substrate terminal 21 formed on a second substrate 2,

wherein a driving IC 13 is mounted on the second substrate, said driving IC has an input terminal electrically connected to said first input terminal, and an output terminal 11 electrically connected to said second terminal for conduction between substrates and said second electrode pattern; and

wherein image data is supplied to said first electrode pattern, and a scanning signal is supplied to said second electrode pattern (col. 6, lines 36-46).

According to JP'240, due to increasing the density of the liquid crystal element, driving ICs are used in a so-called COG technology to improve the complicated wiring in the display (Abstract). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid-crystal display apparatus

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of JP'927 with the teaching of Kobayashi and JP'240 by employing a driving IC to improve the wiring of the display and hence, to reduce in size and weight of the display (Abstract).

**Conclusion**

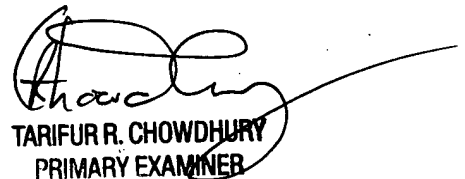
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong



10/12/2004



TARIFUR R. CHOWDHURY  
PRIMARY EXAMINER